BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

PATENT
Docket No.: 19603/2595 (CRF D-2400)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Hempstead et al.	Examiner: Gary B. Nickol
Serial No.	:	09/830,520	
Cnfrm. No.	:	9715	Art Unit: 1642
Filed	:	October 28, 1999	
For	:	METHODS FOR REGULATING ANGIOGENESIS AND VASCULAR INTEGRITY USING TRK RECEPTOR LIGANDS	

DECLARATION OF JOSEPH A. MADRI UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Joseph A. Madri, pursuant to 37 C.F.R. § 1.132, declare:

1. I hold a B.S. degree and an M.S. degree from St. John's University, Jamaica, New York in Biology as well as a Ph.D. in Chemistry and an M.D. from Indiana University, Bloomington, Indiana.

2. I am a Professor in the Department of Pathology at Yale University School of Medicine, New Haven, Connecticut.

3. As demonstrated in my Curriculum Vitae (attached hereto at Exhibit 1), I have extensive expertise in the area of angiogenesis. In particular, my areas of research have included angiogenesis, angiogenic growth factor biology, connective tissue biophysics, biochemistry and cell biology, vascular biology, vascular development, neurovascular development, cardiovascular development, and immunology.

4. I have reviewed the above patent application and U.S. Patent No. 5,733,871 to Alps et. al., ("Alps") and am providing this declaration to explain the why Alps' method of treating neuronal damage would not have suggested to scientists in the field that

the trk receptor ligands, brain derived neurotrophic factor ("BDNF"), NT-3, or NT-4, would be useful in inducing angiogenesis, as described in the present application.

5. Alps relates to the treatment of neuronal damage in the central nervous system of individuals in need of such treatment. In particular, Alps relates to intravenous administration of pharmaceutically acceptable compositions of neurotrophic factors, such as bFGF, aFGF, NGF, CNTF, BDNF, NT3, NT4, IGF-I, and IGF-II, for treating or preventing neuronal damage as a consequence of ischemia, hypoxia, or neurodegeneration. Thus, Alps relates to administration of neurotrophic factors which target neurons to improve survival and limit damage.

6. Nowhere does Alps disclose inducing angiogenesis in a patient that has cardiac ischemia or a vascular disorder by administering BDNF, NT-3, or NT-4. In its examples, Alps uses focal or global ischemia models to induce neuronal damage. However, such models are used to create the symptom that Alps is interested in treating—i.e. neuronal damage. There is no indication in Alps that the underlying condition causing neuronal damage in Alps is being treated or is capable of being treated in accordance with the present application. There is also no indication that Alps is inducing angiogenesis with BDNF, NT-3, or NT-4 as in the invention of the present application. All Alps is doing with these neurotrophic factors is what was well known in the art to use them for—treating neuronal conditions.

7. The invention of the present application goes beyond the known use of such factors and involves the discovery that BDNF, NT-3, and NT-4 can be used for the very different purpose of inducing angiogenesis.

8. The factors that Alps identifies as neurotrophic factors are wide ranging and, while they include BDNF, NT-3, and NT-4, they go well beyond them. Indeed, the bulk of the experimental work set forth in Alps is with bFGF which, unlike BDNF, NT-3, and NT-4, is not a trk receptor ligand. In the sentence bridging columns 4 and 5 of Alps, it is stated that "[s]ome neurotrophic factors are also capable of promoting neurite outgrowth and glial cell and blood vessel restoration or inducing cells to secrete other neurotrophic factors (emphasis added)." However, in column 9, lines 39-49 of Alps, it is made clear that, with regard to promoting blood vessel formation, Alps is only talking about bFGF. Alps's acknowledgement that bFGF achieves angiogenesis is no surprise, because the ability of bFGF to do so was well known in 1999.

9. What was not known even when the present application was filed in 1999 was that BDNF, NT-3, or NT-4 have the ability to promote blood vessel formation.

These molecules, at that time, were regarded as neurotrophic factors having no relevance to inducing angiogenesis. Thus, the indication in Alps (column 9, lines 42-45) that the non-trk receptor ligand, bFGF, is a potent "'gliotrophic' factor that promotes the proliferation of brain glial cells (including astroglia and oligodendroglia), as well as an 'angiogenic' factor that promotes the proliferation of brain capillary endothelial cells and blood vessels" was limited to bFGF. This statement would not have suggested to those in the field that BDNF, NT-3, or NT-4 are useful in promoting angiogenesis.

10. For all of these reasons, I, like others skilled in the area of angiogenesis, reading Alps would not have not have regarded it as teaching that BDNF, NT-3, or NT-4 would be useful in inducing angiogenesis.

11. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 7/20/04

Joseph A. Madri, M.D., Ph.D.

7/7/04

CURRICULUM VITAE

Name: **Joseph A. Madri**

Date and Place of Birth: May 16, 1946; New York, New York
Married, Two children

Education:

1959-1963	Archbishop Molloy High School, Jamaica, New York
1963-1967	St. John's University, Jamaica, New York, B.S. in Biology
1967-1969	St. John's University, Jamaica, New York, M.S. in Biology
1969-1973	Indiana University, Bloomington, Indiana, Ph.D. in Chemistry
1973-1975	Indiana University, Indianapolis, Indiana, M.D.
1975-1977	Resident in Anatomical Pathology, Yale-New Haven Hospital, New Haven, CT
1977-1980	Fellow in Pathology, Yale University School of Medicine, New Haven, CT

Career:

1967-1969	NSF Traineeship, St. John's University
1969-1970	Associate Instructor, Indiana University
1970-1971	Research Associate, Indiana University
1971-1972	Research Assistant, Indiana University
1972-1973	NIH Traineeship, Indiana University
1975	American Lung Association Student Fellowship, Indiana University
1975-1977	Resident, Department of Pathology, Yale University Medicine
1977-1980	USPHS Individual Research Fellowship Award, Yale University
1980-1985	Assistant Professor, Department of Pathology, Yale University School of Medicine
1980-1984	Co-director, Immunohistochemistry Laboratory, Department of Pathology, Yale University School of Medicine
1985-1991	Associate Professor, Department of Pathology, Yale University School of Medicine
1989	Tenure
1991-present	Professor, Department of Pathology, Yale University School of Medicine and The Graduate School of Arts & Sciences Co-director of the Reed Foundation Fellowship in Vascular Biology
1992-present	Director of Medical Studies, Pathology
1992-present	Founding Scientist & Member, Board of Directors, Alexion Pharmaceuticals, Inc., New Haven, CT
1992-2000	Chairman, External Scientific Advisory Board, Alexion Pharmaceuticals, Inc., New Haven, CT.
1992-1998	Member, Shrinners Hospitals Research Advisory Board
1994-1999	Member, Scientific Board of Directors, Genzyme Tissue Repair, Inc. Framingham, MA.

Medical Licenses:

Indiana	#01026304	08/06/75 to 06/30/82
Connecticut	#022381	1979 to present

Societies and Honors:

Sigma Xi
Phi Lambda Upsilon
American Chemical Society
American Association of Pathologists
International Academy of Pathology
American Society for Cell Biology
New York Academy of Science
Diplomate - American Board of Pathology 1979
Member, Editorial Board of "Arteriosclerosis" 1983 to 1999

Member, Editorial Board of "American Journal of Pathology" 1984 to 1992
Associate Editor, "American Journal of Pathology" Jan. 1992 to May 1996
Member, Editorial Board of "Laboratory Investigation" July, 1991 to 1995
Executive Editor, "Laboratory Investigation" July, 1995 to Sept., 2003
Member, Editorial Board of "Angiogenesis" 1997 to Present
Member, Editorial Board of "Endothelium" 1999 to Present
Associate Editor, "FASEB J." 2002 - present
Reviewer for the Pathology A and Pathobiological Chemistry Study Sections, The Dental Institute, The Cancer Institute, The Atherosclerosis SCOR, Senior Fellowships Special Study Section and Developmental Cardiobiology Program Projects Study Section of The National Institutes of Health at various times from1983 to Present
Black Belt-First Dan, TaeKwon-Do 1991
Member, American Heart Association, Study Section on Vascular Wall Biology 1991-1994
Member, Research Advisory Board of the Shriners Children's Hospitals, 1992-1998
Councilor, American Society of Investigative Pathology, July, 1993 to July, 1996
Black Belt-Second Dan, TaeKwon-Do 1997
MERIT Award from NHLBI-NIH 2/99
Black Belt-Third Dan, TaeKwon-Do 2000
Chugai Award for Meritorious Mentorship & Scholarship from the Amer. Soc. Invest. Pathol., 4/2001
Black Belt-Fourth Dan, TaeKwon-Do 2003

Areas of Interest/Expertise:

Vasculogenesis & Angiogenesis
Biology and Biochemistry of Connective Tissues
Cell Biology of Endothelial and Vascular Smooth Muscle Cells
Cell-Matrix Interactions
Immunopathology
Light and Electron Microscopy and Immunoelectron Microscopy

Trainees To Date:

PostDoctoral:	37
Ph.D. Thesis:	11
M.D. Thesis:	9
Undergraduate:	20

Current Support:

R37-HL28373-22
Current
MERIT Award
The Pathology of Endothelial Neovascularization
Annual Direct Costs: $297,530.00
Duration: 3/99 to 2/09
Principal Investigator: J.A. Madri
Effort: 25%

RO1-HL51018-08
Current
Proteinase modulation during T cell-endothelial adhesion
Annual Direct Costs: $225,000.00
Duration: 4/01 to 3/05
Principal Investigator: J.A. Madri
Effort: 20%

PO1-DK38979-10
Current
Cell and Molecular Pathobiology of Renal Disease
Project 1: Renal microvascular endothelial cell differentiation
Annual Direct Costs: $139,944.00
Duration: 7/93 to 11/04
Principal Investigator: J.A. Madri
Effort: 20%

PO1-NS35476-07
Current
Adaptive Mechanisms of Developing Brain
Project 1: Cellular and Molecular Basis of Angiogenesis in the Developing Brain

Annual Direct Costs: $165,850.00
Duration: 2/03 to 6/08
Project 1 Principal Investigator: J. A. Madri
Effort: 20%

T32 DK07556-17 — Experimental Pathobiology Training Grant
Current
Annual Direct Costs: $116,232.00
Duration: 7/77 to 6/07
Principal Investigator: J. S. Morrow
Effort: 5%

Reed Foundation — Postdoctoral Fellowship in Vascular Biology
Current
Annual Direct Costs: $30,000.00
Duration: 1/92 to 06/2004
Co-Director (with Dr. L. Bell): J.A. Madri

RO1-HL51018-08 — Proteinase modulation during T cell-endothelial adhesion
Pending
Annual Direct Costs: $250,000.00
Duration: 4/05 to 3/09
Principal Investigator: J.A. Madri
Effort: 20%

Patents:

1) Genetically engineered endothelial cells exhibit enhanced migration and plasminogen activator activity	USA # 5,336,615	Aug. 9, 1994
2) Universal Donor Cells	USA # 5,705,732	Jan. 6, 1998
3) Universal Donor Cells	Europe #00114262.9-2105	Aug. 29, 2000

Publications (203)

1. Madri, J.A. Carboxypeptidase A: Solvent and ion effects. Ph. D. Thesis, Indiana University, 1973.

2. Madri, J.A., Fromowitz, F.B. Amyloid deposition in immunoblastic lymphadenopathy. Human Pathol., 9: 157-162, 1978.

3. Marier, R., Valenti, A.J., Madri, J.A. Gram-negative endocarditis following cystoscopy. J. Urol., 119: 134-140, 1978.

4. Stenn, K.S., Madri, J.A., Roll, F.J. Migrating epidermis produces AB_2 collagen and requires continual collagen synthesis for movement. Nature, 277: 229-232, 1979.

5. Madri, J.A., Furthmayr, H. Isolation and tissue localization of type AB_2 collagen from normal lung parenchyma. Am. J. Pathol., 94: 323-331, 1979.

6. Roll, F.J., Madri, J.A., Furthmayr, H. A new method of iodinating collagens for use in radioimmunoassay. Anal. Biochem., 96: 489-499, 1979.

7. Madri, J.A., Furthmayr, H. Collagen polymorphism in the lung: An immunochemical study of pulmonary fibrosis. Human Pathol., 11: 353-366, 1980.

8. Roll, F.J., Madri, J.A., Albert, J., Furthmayr, H. Codistribution of collagen types IV and AB_2 in basement membranes and mesangium of the kidney: An immunoferritin study of ultrathin frozen sections. J. Cell Biol., 85: 597-616, 1980.

9. Madri, J.A., Roll, F.J., Furthmayr, H., Foidart, J-M. Ultrastructural localization of fibronectin and laminin in the basement membranes of the murine kidney. J. Cell Biol. 86: 682-687, 1980.

10. Madri, J.A., Dreyer, B., Pitlick, F., Furthmayr, H. The collagenous components of subendothelium: Correlation of structure and function. Lab. Invest., 43: 303-315, 1980.

11. Madri, J.A., Dise, C.A., LiVolsi, V.A., Merino, M.J., Bibro, M.C. Elastofibroma dorsi: An immunochemical study of collagen content. Human Pathol., 12: 186-190, 1981.

12. Kemp, J.D., Madri, J.A. The immune response to human type III and type V (AB_2) collagen antigenic determinants and genetic control in mice. Eur. J. Immunol., 11: 90-94, 1981.

13. Ingber, D.E., Madri, J.A., Jamieson, J.D. Role of basal lamina in the neoplastic disorganization of tissue architecture. Proc. Natl. Acad. Sci., 78: 3901-3905, 1981.

14. Engel, J., Ordermatt, E., Engel, A., Madri, J.A., Furthmayr, H., Rohde, H. and Timpl, R. Shapes, domain organizations and flexibility of laminin and fibronectin, two multi-functional proteins of the extracellular matrix. J. Mol. Biol., 150:97-120, 1981.

15. Madri, J.A., Foellmer, H., Furthmayr, H. 1981. Type V collagens of the human placenta: Trimer α-chain composition, ultrastructural morphology and peptide analysis. Coll. Rel. Res., 2: 19-29, 1982.

16. Foellmer, H.G., Madri, J.A., Wyatt, R., Furthmayr, H. Localization of collagen type IV in basement membranes by monoclonal antibodies. Protides of the Biological Fluids, 29: 773-776, 1982.

17. Furthmayr, H., Roll, F.J., Madri, J.A., Foellmer, H.G. Composition of Basement Membranes as Viewed with the Electron Microscope, in New Trends in Basement Membrane Research, ed. by K. Kuhn, H. Schoene, and R. Timpl, Raven Press, New York, p. 31-48, 1982.

18. Madri, J.A. The Preparation of Type V Collagen, in The Immunochemistry of the Extracellular Matrix, Vol. I, edited by H. Furthmayr, CRC Press, Boca Raton, Florida, p. 75-90, 1982.

19. Roll, F.J., Madri, J.A. Immunocytochemical Techniques in Connective Tissue Research in The Immunochemistry of the Extracellular Matrix, Vol. II, edited by H. Furthmayr, CRC Press, Boca Raton, Florida, p. 49-88, 1982.

20. Kemp, J.D., Madri, J.A. The Immunobiology and Immunogenetics of the Collagens, in The Immunochemistry of the Extracellular Matrix, Vol. II, edited by H. Furthmayr, CRC Press, Boca Raton, Florida, p. 175-186, 1982.

21. Madri, J.A., Barwick, K.W. An Immunohistochemical study of nasopharyngeal neoplasms using keratin antibodies: Epithelial versus non-epithelial neoplasms. Am. J. Surg. Path., 6: 143-153, 1982.

22. Madri, J.A., Stenn, K.S. Aortic Endothelial Cell Migration: I. Matrix requirements and composition. Am. J. Pathol., 106: 180-186, 1982.

23. Rao, C.N., Margulies, I.M.K., Tralka, T.S., Terranova, V.P., Madri, J.A., Liotta, L.A. Isolation of a subunit of laminin and its role in molecular structure and tumor cell attachment. J. Biol. Chem., 257: 9740-9744, 1982.

24. Furthmayr, H., Madri, J.A. Rotary shadowing of Connective Tissue Macromolecules. Coll. Rel. Res., 2: 349-363, 1982.

25. Barwick, K.W., Madri, J.A. An immunohistochemical study of adenomatoid tumors utilizing keratin and factor VIII antibodies: Evidence of a mesothelial origin. Lab. Invest., 47: 276-280, 1982.

26. Madri, J.A. Endothelial Cell-Matrix Interactions in Progress in Thrombosis and Hemostasis, ed. by T. Spaet, Grune & Stratton, Inc., New York, Vol. 6, pp. 1-24, 1982.

27. Rao, C.N., Margulies, I.M.K., Goldfarb, R.H., Madri, J.A., Woodley, D.T., Liotta, L.A. Differential proteolytic susceptibility of laminin alpha and beta subunits. Arch. Biochem. Biophys., 219: 65-70, 1982.

28. Stenn, K.S., Madri, J.A., Tinghitella, T., Terranova, V. Multiple mechanisms of dissociated epidermal cell spreading. J. Cell Biol.,96: 63-67, 1983.

29. Madri, J.A., Barwick, K.W. Use of avidin-biotin complex in an ELISA system: A quantitative comparison with two other immunoperoxidase detection systems using keratin antisera. Lab. Invest., 48: 98-107, 1983.

30. Foellmer, H.G., Madri, J.A., Furthmayr, H. Monoclonal antibodies to type IV collagen: Probes for the study of structure and function of basement membranes. Lab. Invest., 48: 639-649, 1983.

31. Madri, J.A., Foellmer, H.G., Furthmayr, H. Ultrastructural morphology and domain structure of a unique collagenous component of basement membranes. Biochemistry, 22: 2797-2804, 1983.

32. Madri, J.A., Williams, S.K. Capillary endothelial cell cultures: Phenotypic modulation by matrix components. J. Cell Biol., 97: 153-165, 1983.

33. Foellmer, H.G., Kawahara, K., Madri, J.A., Furthmayr, H., Timpl, R., Tuderman, L. 1983. A monoclonal antibody specific for the amino terminal cleavage site of procollagen type I. Eur. J. Biochem., 134: 183-189, 1983.

34. Lwebuga-Mukasa, J., Madri, J.A., Albert, J., Furthmayr, H. Studies on the interaction of human plasma-fibronectin with native Type I calf skin collagen molecules using the rotary shadowing technique. Coll. Rel. Res., 4: 95-110, 1984.

35. Madri, J.A., Carter, D. Human lung scar carcinomas: Scar cancer of the lung: Origin and significance. Human Pathol., 15: 625-631, 1984.

36. Madri, J.A., Pratt, B.M., Yurchenco, P.D., Furthmayr, H. The Ultrastructural Organization and Architecture of Basement Membranes. In Basement Membranes and Cell Movement, ed. by M. Bernfield, CIBA Symposium No. 108, pp. 6-24, 1984.

37. Lwebuga-Mukasa, J., Thulin, G., Madri, J.A., Barrett, C., Warshaw, J. An acellular human amnionic membrane model for in vitro culture of type II pneumocytes: The role of the basement membrane in cell morphology and function. J. Cell Physiol., 121: 215-225, 1984.

38. Merrill, W., Barwick, K.W., Madri, J.A., Strober, W., et al. Bronchial lavage proteins as correlates of histopathologic airway changes in healthy smokers and patients with pulmonary carcinoma. Amer. Rev. Resp. Dis., 130: 905-909, 1984.

39. Pratt, B.M., Harris, A.S., Morrow, J.S., Madri, J.A. Mechanisms of cytoskeletal regulation: Modulation of aortic endothelial cell spectrin by the extracellular matrix. Amer. J. Pathol., 117: 349-354, 1984.

40. Broek, D.L., Madri, J.A., Eikenberry, E.F., Brodsky, B. Characterization of the tissue form of type V collagen from chick bone. J. Biol. Chem., 260: 555-562, 1985.

41. Duray, P.H., Mark, E.S., Barwick, K.W., Madri, J.A., Strom, R.L. Congenital polycystic tumor of the atrioventricular node: Autopsy study with immunohistochemical findings suggesting evidence for an endodermal derivation. Arch. Pathol. Lab. Med., 109: 30-34, 1985.

42. Pratt, B.M., Madri, J.A. Immunolocalization of type IV collagen and laminin in non-basement membrane structures of murine corneal stroma. Lab. Invest., 52: 650-655, 1985.

43. Chow, A.W., Fuller, G.G., Wallace, D.G., Madri, J.A. The rheooptical response of rodlike shortened collagen protein to transient shear flow. Macromolecules, 18: 805-810, 1985.

44. Chow, A.W., Fuller, G., Wallace, D.G., Madri, J.A. The rheo-optical response of rodlike chains subject to transient shear flow. Part II: Two-color flow birefringence measurements on collagen protein. Macromolecules, 18: 793-804, 1985.

45. Ingber, D.E., Madri, J.A., Jamieson, J.D. Neoplastic disorganization of pancreatic epithelial cell-cell relations: Role of basement membrane. Amer. J. Pathol., 121: 248-260, 1985.

46. Pratt, B.M., Form, D., Madri, J.A. Endothelial cell-extracellular matrix interactions. In Biology, Chemistry and Pathology of Collagen, ed. by Fleishmajer, R., Olsen, B.R., and Kuhn, K. Ann. N.Y. Acad. Sci. 460:274-288, 1985.

47. Ingber, D.E., Madri, J.A., Jamieson, J.D. Basement membrane as a spatial organizer of polarized epithelia: Exogenous basement membrane reorients pancreatic epithelial tumor cells in vitro. Amer. J. Pathol., 122:129-139, 1986.

48. Madri, J.A., Pratt, B.M. Endothelial cell-matrix interactions: In vitro models of angiogenesis. J. Histochem. and Cytochem., 34:85-91, 1986.

49. Lwebuga-Mukasa, J., Ingbar, D., Madri, J.A. Repopulation of a human alveolar matrix by adult rat type II pneumocytes in vitro: A novel system for type II pneumocyte culture. Expt'l. Cell Res., 162:423-435, 1986.

50. Duray, P.H., Cuono, C.B., Madri, J.A. Demonstration of cutaneous doxorubicin extravasation by rhodamine filtered fluorescence microscopy. J. Surgical Oncology, 31:21-25, 1986.

51. Leto, T.L., Pratt, B.M., Madri, J.A. Mechanisms of cytoskeletal regulation: Modulation of aortic endothelial cell protein band 4.1 by the extracellular matrix. J. Cell Physiol., 127:423-431, 1986.

52. Ingber, D.E., Madri, J.A., Folkman, J.M. Angiostatic steroids induce capillary basement membrane dissolution and inhibit angiogenesis. Endocrinology, 119:1768-1775, 1986.

53. Form, D.M., Pratt, B.M., Madri, J.A. Endothelial cell proliferation during angiogenesis: In vitro modulation by basement membrane components. Lab. Invest., 55:521-530, 1986.

54. Smith, L.T., Holbrook, K.A., Madri, J.A. Collagen types I, III and V in human embryonic and fetal skin. Amer. J. Anat., 175:507-521, 1986.

55. Davis, B., Madri, J.A. Type I and type III procollagen peptides during hepatic fibrogenesis: An immunohistochemical and ELISA serum study in the CCl4 rat model. Amer. J. Pathol., 126: 137-147, 1987.

56. Pratt, B.M., Madri, J.A. Collagen, Proteoglycans, Connective Tissue: Interactions with Vascular Wall Cells, in Peripheral Vascular Disease, Grune & Stratton, N.Y., pp. 209-230, 1987.

57. Ingber, D.E., Madri, J.A., Folkman, J. Endothelial growth factors and extracellular matrix regulate DNA synthesis through modulation of cell and nuclear expansion. In Vitro Cellular & Developmental Biology, 23:387-394, 1987.

58. Nicosia, R.F., Madri, J.A. The microvascular extracellular matrix: Developmental changes during angiogenesis in the aortic ring-plasma clot model. Amer. J. Pathol., 128:78-90, 1987.

59. Davis, B.H., Pratt, B.M., Madri, J.A. Retinol and extracellular collagen matrices modulate hepatic Ito cell collagen phenotype and cellular retinol binding protein levels. J. Biol. Chem., 262:10280-10286, 1987.

60. Davis, B., Madri, J.A. An immunohistochemical and serum ELISA study of Type I and III procollagen amino propeptides in primary biliary cirrhosis. Amer. J. Pathol., 128:265-275, 1987.

61. Keller, R., Silbert, J., Furthmayr, H., Madri, J.A. Aortic endothelial cell proteoheparan sulfate: I. Isolation and characterization of a plasmamembrane-associated and extracellular species. Amer. J. Pathol., 128:286-298, 1987.

62. Keller, R., Pratt, B.M., Furthmayr, H., Madri, J.A. Aortic endothelial cell proteoheparan sulfate: II. Modulation by extra-cellular matrix. Amer. J. Pathol., 128:299-306, 1987.

63. Caplan, M.J., Stow, J.L., Newman, A.P., Madri, J.A., Anderson, H.C., Farquhar, M.G., Palade, G.E., Jamieson, J.D. Dependence on pH of polarized sorting of secreted proteins. Nature, 329:632-635, 1987.

64. Buchanan, M.R., Richardson, M., Haas, T.A., Hirsh, J., Madri, J.A. The basement membrane underlying the vascular endothelium is not thrombogenic: In vivo and in vitro studies with rabbit and human tissue. Thrombosis and Haemostasis, 58:698-704, 1987.

65. Tite, J.A., Foellmer, H.G., Madri, J.A., Janeway, C.A. Inverse Ir gene control of the antibody and T cell proliferative responses to human basement membrane collagen. J. Immunol., 139:2892-2898, 1987.

66. Madri, J.A. The extracellular matrix as a modulator of angiogenesis, in Cardiovascular Disease: Molecular and Cellular Mechanisms, Prevention, Treatment. Edited by L. Gallo, Plenum Press, New York, Chapter 21, 177-184, 1987.

67. Nicosia, R.F., Madri, J.A. The extracellular matrix produced during angiogenesis in culture, in Cardiovascular Disease: Molecular and Cellular Mechanisms, Prevention, Treatment. Edited by L. Gallo, Plenum Press, New York, 185-192, 1987.

68. Madri, J.A., Pratt, B.M. Angiogenesis, in The Molecular and Cellular Biology of Wound Healing. Edited by Clark, R.F., and Henson, P., Plenum Press, New York, Chapter 15, 337-358, 1988.

69. Madri, J.A., Pratt, B.M., Tucker, A.M. Phenotypic modulation of endothelial cells by transforming growth factor-β depends upon the composition and organization of the extracellular matrix. J. Cell Biol., 106:1375-1384, 1988.

70. Yannariello-Brown, J., Wewer, U., Liotta, L., Madri, J.A. Distribution of a 69 kD laminin binding protein in aortic and microvascular endothelial cells: Modulation during cell attachment, spreading and migration. J. Cell Biol., 106:1773-1786, 1988.

71. Madri, J.A., Pratt, B.M., Yannariello-Brown, J. Matrix driven cell size changes modulates aortic endothelial cell proliferation and sheet migration. Amer. J. Pathol., I32:18-27, 1988.

72. Carley, W., Milici, A.J., Madri, J.A. Extracellular matrix specificity for the differentiation of capillary endothelial cells. Expt'l. Cell Res., 178:426-434, 1988.

73. Madri, J.A., Pratt, B.M., Yannariello-Brown, J. Endothelial Cell Extracellular Matrix Interactions: Matrix as a Modulator of Cell Function, in Endothelial Cell Biology in Health and Disease, ed. by N. Simionescu & M. Simionescu, Plenum Press, New York., pp. 167-188, 1988.

74. Langdon, R., Cuono, C., Birchall, N., Madri, J.A., Kuklinska, E., McGuire, J., Moellmann, G., Reconstitution of structure and cell function in human skin grafts derived from cryoperserved allogeneic dermis and autologous cultured keratinocytes. J. Invest. Dermatol., 91:478-485, 1988.

75. Kocher, O., Madri, J.A. Modulation of actin mRNAs in vascular cells by matrix components and TGF-β1. In Vitro Cellular & Developmental Biology, 25:424-434, 1989.

76. Madri, J.A., Reidy, M., Kocher, O., Bell, L., Endothelial cell behavior after denudation injury is modulated by TGF-β and fibronectin. Lab. Invest., 60:755-765, 1989.

77. Madri, J.A., Kocher, O., Merwin, J.R., Bell, L., Yannariello-Brown, J. The interactions of vascular cells with solid phase (matrix) and soluble factors. J. Cardiovasc. Pharm., 14 (Suppl. 6):S70-S75, 1989.

78. Madri, J.A. Inflammation and Healing. In Anderson's Pathology, edited by J.M. Kissane, Mosby, Lanham, M.D. pp. 67-110, 1989.

79. Stenn, K.S., Link, R., Moellmann, G., Madri, J.A., Kuklinska, E., Dispase, a neutral protease from bacillus polymyxa is a powerful fibronectinase and Type IV collagenase. J. Invest. Dermatol., 93:287-290, 1989.

80. Bell, L., Madri, J.A. Effect of platelet factors on migration of cultured bovine aortic enothelial and smooth muscle cells. Circ. Res., 65:1057-1065, 1989.

81. Murray, J., Madri, J., Tite, J., Carding, S., Bottomly, K., MHC gene control of $CD4^+$ T cell subset activation. J. Expt'l. Med., 170: 2135-2140, 1989.

82. Yannariello-Brown, J., Madri, J.A. A 48 kD collagen-binding phospho-protein isolated from bovine aortic endothelial cells interacts with the collagenous domain, but not the globular domain, of collagen type IV. Biochem. J., 265: 383-392, 1990.

83. Merwin, J.R., Anderson, J., Kocher, O., van Itallie, C., Madri, J.A., Transforming growth factor β1 modulates extracellular matrix organization and cell-cell junctional complex formation during in vitro angiogenesis. J. Cell Physiol., 142: 117-128, 1990.

84. Madri, J.A., Kocher, O., Merwin, J.R., Basson, C.T., Bell, L., The interactions of vascular cells with transforming growth factor β., in Transforming Growth Factor-βs: Chemistry, Biology and Therapeutics, edited by K.A. Piez and M.B. Sporn. N.Y. Acad. Sci., 593:243-258, 1990.

85. Basson, C.T., Knowles, W.J., Abelda, S., Bell, L., Castronovo, V., Liotta, L.A., Madri, J.A. Spatiotemporal segregation of endothelial cell integrin and nonintegrin extracellular matrix binding proteins during adhesion events. J. Cell Biol., 110: 789-802, 1990.

86. Bell, L., Madri, J.A., Influence of the angiotensin system on endothelial and smooth muscle cell migration. Amer. J. Pathol., 137: 7-12, 1990.

87. Kocher, O., Kennedy, S., Madri, J.A., Alternative splicing of endothelial cell fibronectin mRNA in the IIICS region in endothelial cells: Functional significance. Amer. J. Pathol., 137: 1509-1524, 1990.

88. Madri, J.A., Bell, L., Marx, M, Merwin, J.R., Basson, C.T., Prinz, C., The effects of soluble factors and extracellular matrix components on vascular cell behavior in vitro and in vivo: Models of de-endothelialization and repair. J. Cellular Biochem., 45: 123-130, 1991.

89. Pfeiffer, C., Murray, J., Madri, J., Bottomly, K, Selective activation of Th1- and Th2-like cells in vivo: Response to human collagen IV. Immunol. Rev., 123:65-84, 1991.

90. Merwin, J.R., Newman, W., Beall, D., Tucker, A., Madri, J.A., Vascular cells respond differentially to transforming growth factors-beta$_1$ and beta$_2$ in vitro. Amer. J. Pathol., 138: 37-51, 1991.

91. Madri, J.A., Endothelial Cell - Extracellular Matrix Interactions: Modulation of Vascular Cell Phenotype by Matrix Components and Soluble Factors, In The First Altshul Symposium on Atherosclerosis: Cellular and Molecular Interactions in the Artery Wall, edited by S. Fedoroff, Plenum Press, New York, pp. 127-135, 1991.

92. Ment, L.R., Stewart, W.B., Ardito, T.A., Madri, J.A., Beagle pup germinal matrix maturation studies. Stroke, 22:390-395, 1991.

93. Merwin J. R., Tucker, A., Madisen, L., Purchio, A., Madri, J.A., Vascular cell responses to a hybrid transforming growth factor beta molecule. Biochem. Biophys. Res. Comm., 175:589-595, 1991.

94. Merwin J. R., Tucker, A., Roberts, A., Kondaiah, P, Madri, J.A., Vascular cell responses to transforming growth factor beta$_3$ mimic those of transforming growth factor beta$_1$ In Vitro, Growth Factors: 5:149-158, 1991.

95. Madri, J.A., Merwin, J.R., Bell, L., Basson, C.T., Kocher, O., Perlmutter, R., Prinz, C., Interactions of matrix components and soluble factors in vascular responses to injury: Modulation of cell phenotype, in Endothelial Cell Dysfunction, ed. by N. Simionescu & M. Simionescu, Plenum Press, New York., pp. 11-30, 1992.

96. Bell, L., Luthringer, D.J., Madri, J.A., Warren, S.L., Autocrine angiotensin system regulation of bovine aortic endothelial cell migration and plasminogen activator involves modulation of proto-oncogene pp60$^{c\text{-}src}$ expression. J. Clin. Invest., 89: 315-320, 1992.

97. Madri, J.A., Marx, M., Matrix composition, organization and soluble factors: Modulators of microvascular cell differentiation in vitro. Kidney Int'l., 41: 560-565, 1992.

98. Murray, J.S., Pfeiffer, C., Madri, J.A., Bottomly, K., MHC control of CD4 T cell subset activation. II. A single peptide induces either humoral or cell-mediated responses in mice of distinct MHC genotype. Eur. J. Immunol, 22: 559-565, 1992.

99. Moore, R., Madri, J.A., Carlson, S., Madara, J.L., Intestinal epithelium restitutes normally in the presence of anti-basement membrane antibodies and soluble basement membrane components. Gastroenterol., 102: 199-130, 1992.

100. Madri, J.A., Basson, M.D., Extracellular matrix-cell interactions: Dynamic modulators of cell, tissue and organism structure and function. Lab. Invest., 66: 519-521, 1992.

101. Madri, J.A., Bell, L., Merwin, J.R., Modulation of vascular cell behavior by transforming growth factors beta. Molecular Reproduction and Development, 32: 121-126, 1992.

102. Basson, M.D., Modlin, I.M., Madri, J.A., Human enterocyte (Caco-2) migration is modulated in vitro by extracellular matrix composition and epidermal growth factor. J. Clin Invest., 90: 15-23, 1992.

103. Madri, J.A., Bell, L., Vascular cell responses to injury: modulation by extracellular matrix and soluble factors, In Ultrastructure, Membranes and Cell Interactions in Atherosclerosis, Ed. by H. Robenek and N. Severs, CRC Press, Boca Raton, FL, Chapter 6, pp. 165-179, 1992.

104. Basson, C.T., Kocher, O., Basson, M.D., Asis, A., Madri, J.A., Differential Modulation of Vascular Cell Integrin and Extracellular Matrix Expression In Vitro by TGF-β1 Correlates with Reciprocal Effects on Cell Migration. J. Cell. Physiol., 153: 118-128, 1992.

105. Qian, S.W., Burmester, J.K., Merwin, J.R., Madri, J.A., Sporn, M.B., Roberts, A.B., Identification of a structural domain that distinguishes the actions of the type 1 and 2 isoforms of TGF-β on endothelial cells. Proc. Natl. Acad. Sci. USA, 89: 6290-6294, 1992.

106. Ment, L.R., Stewart, W.B., Ardito, T.A., Huang, E., Madri, J.A., Indomethacin promotes germinal matrix microvessel maturation in the newborn beagle pup. Stroke, 23: 1132-1137, 1992.

107. Merwin, J.R., Lynch, M.J., Madri, J.A., Pastan, I., Seigall, C.B., Acidic FGF-Pseudomonas exotoxin chimeric protein elicits anti-angiogenic effects on endothelial cells. Cancer Research, 52:4995-5001, 1992.

108. Schimmenti, Yan, H-C., Madri, J.A., Albelda, S., Platelet endothelial cell adhesion molecule PECAM-1 modulates cell migration. J. Cell. Physiol, 153: 417:428, 1992.

109. Basson, M.D., Flynn, S.D., Jena, B.P., Modlin, I.M., Madri, J.A., Independent modulation of enterocyte migration and proliferation by growth factors, matrix proteins and pharmacologic agents in an in vitro model of mucosal healing. Surgery, 112:299-308, 1992.

110. Hayashi, K., Madri, J.A., Yurchenco, P.D., Endothelial cells interact with the core protein of basement membrane Perlecan through β1 and β3 integrins: An adhesion modulated by glycosaminoglycan. J. Cell Biol., 119:945-960, 1992.

111. Merwin, J.R., Madri, J.A., Lynch, M., Cancer cell binding to E-selectin transfected endothelia. Biochem. Biophys. Res. Comm., 189:315-323, 1992.

112. Johnson, W.C., Pagano, T.G., Basson, C.T., Madri, J.A., Gooley, P., Armitage, I.M., Biologically-active RGD oligopeptides assume a type II β-turn in solution. Biochemistry, 32:268-273, 1993.

113. Baron, J.L., Madri, J.A., Ruddle, N.H., Hashim, G., Janeway, C.A., Surface expression of α4 integrin by CD4 T cells is required for their entry into brain parenchyma. J. Expt'l. Med., 177:57-68, 1993.

114. Deckelbaum, L.I., Scott, J.J., Stetz, M.L., O'Brien, K.M., Sumpio, B.E., Madri, J.A., Bell, L., Photoinhibition of smooth muscle cell migration: Potential therapy for restenosis. Lasers in Surgery & Medicine, 13:4-11, 1993.

115. Marx, M., Daniel, T.O., Kashgarian, M., Madri, J.A., Spatial organization of the extracellular matrix modulates the expression of PDGF-receptor subunits in mesangial cells. Kidney Int'l., 43:1027-1041, 1993.

116. Hauser, I., Setter, E., Bell, L., Madri, J.A., Fibronectin expression correlates with U937 cell adhesion to migrating bovine aortic endothelial cells in vitro. Amer. J. Pathol., 143:173-179, 1993.

117. Murray, J., Madri, J., Pasqualini, T., Bottomly, K., Functional CD4 T-cell subset interplay in an intact immune system. J. Immunol., 150:4270-4276, 1993.

118. Hauser, I., Johnson, D.R., Madri, J.A., Differential induction of VCAM-1 on human iliac venous and arterial endothelial cells and its role in adhesion. J. Immunol., 151(10):1-14, 1993.

119. Basson, M.D., Modlin, I.M., Turowski, G., Madri, J.A., Enterocyte-matrix interactions in the healing of mucosal injury. Eur. J. Gastroenterol., 93(5 Suppl 3):S21-S28, 1993.

120. Burmester, J.K., Qian, S.W., Roberts, A.B., Huang, A. Amatayakul-Chantler, S., Suardet, L., Odartchenko, N., Madri, J.A., Sporn, M.B., Characterization of distinct functional domains of transforming growth factor-β. Proc. Natl. Acad. Sci. USA, 90:8628-8632, 1993.

121. Marx, M., Perlmutter, R., Madri, J.A., Modulation of PDGF-receptor expression in microvascular endothelial cells during in vitro angiogenesis. J. Clin. Invest., 93: 131-139, 1994.

122. Romanic, A.M., Madri, J.A., Extracellular matrix-degrading proteinases in the nervous system. Brain Pathol., 4:145-156, 1994.

123. Romanic, A., Madri, J.A., The induction of 72 kDa gelatinase in T cells upon adhesion to endothelial cells is VCAM-1 dependent. J. Cell Biol., 125:1165-1178, 1994.

124. Basson, M.D., Beidler, D.R., Turowski, G., Zarif, A., Modlin, I.M., Jena, J.A., Madri, J.A., The effects of tyrosine kinase inhibition on basal and EGF-stimulated Caco-2 enterocyte sheet migration and proliferation. J. Cell. Physiol., 160:491:501, 1994.

125. Fodor, W.L., Williams, B.L., Rollins, S.A., Matis, L., Madri, J.A., Knight, J.W., Velander, W., Squinto, S.P., Expression of a functional human complement inhibitor in transgenic swine as an approach to abrogate xenogeneic hyperacute organ rejection. Proc. Natl. Acad. Sci (USA), 91:11153-11157, 1994.

126. Turowski, G.A., Rashid, Z., Hong, F., Madri, J.A., Basson, M.D., Glutamine modulates phenotype and stimulates proliferation in human colon cancer cell lines, Can. Res., 54:5974-5980, 1994.

127. Squinto, S.P., Madri, J.A., Kennedy, S., Springhorn, J., The ENCEL system: A somatic cell protein delivery system, In Vivo, 8:771-780, 1994.

128. Madri, J.A., Sankar, S., Romanic, A.M., Angiogenesis, in The Molecular and Cellular Biology of Wound Healing. Second Edition, Edited by Clark, R.A.F., Plenum Press, New York, Chapter 11, pp. 355-371, 1996.

129. Ment, L.R., Stewart, W.B., Ardito, T.A., Madri, J.A., Germinal matrix microvascular maturation correlates inversely with the risk period for neonatal intraventricular hemorrhage. Developmental Brain Research, 84:142-149, 1995.

130. Springhorn, J.P., Madri, J.A., Squinto, S.P., Human capillary endothelial cells from abdominal wall adipose tissue: Isolation using an anti-PECAM antibody. In Vitro Cellular & Developmental Biology, 31:473-481, 1995.

131. Sankar, S., Mahooti-Brooks, N., Centrella, M., McCarthy, T.L., Madri, J.A., Expression of transforming growth factor beta type III receptor in vascular endothelial cells increases their responsiveness to transforming growth factor β2. J. Biol. Chem., 270:13567-13572, 1995.

132. Sankar, S., Mahooti-Brooks, N., Hu, K., Madri, J., Modulation of cell spreading and migration by $pp125^{FAK}$ phosphorylation. American J. Pathol., 147:601-608, 1995.

133. Wang, Y., Rollins, S.A., Madri, J.A., Matis, L.A., Anti-C5 monoclonal antibody therapy prevents collagen-induced arthritis and ameliorates established disease. Proc. Natl. Acad. Sci., USA, 92:8955-8959, 1995.

134. Madri, J.A., Graesser, D., Haas, T., The Roles of Adhesion Molecules and Proteinases in Lymphocyte Transendothelial Migration. Biochem & Cell Biol., 74:749-757, 1996.

135. Sankar, S., Mahooti-Brooks, N., Bensen, L., Centrella, M., McCarthy, T.L., Madri, J.A., Modulation of transforming growth factor beta receptor expression in microvascular endothelial cells during in vitro angiogenesis. J. Clin. Invest., 97: 1436-1446, 1996.

136. Becker, P.S., Li, Z., Potselueva, T., Madri, J.A., Newburger, P.E., Berliner, N., Laminin promotes differentiation of NB4 promyelocytic leukemia cells with all-*trans*-retinoic acid. Blood, 88:261-267, 1996.

137. Petzelbauer, E., Springhorn, J.P., Tucker, A., Madri, J.A., The Role of Plasminogen Activator Inhibitor in the Reciprocal Regulation of Bovine Aortic Endothelial and Smooth Muscle Cell Migration by TGF-β1. Amer. J. Pathol., 149: 923-931, 1996.

138. Wang, Y., Hu, Q., Madri, J.A., Rollins, S.A., Chodera, A., Matis, L.A., Amelioration of lupus-like autoimmune disease in NZB/W F_1 mice following treatment with a blocking monoclonal antibody specific for complement component C5, Proc. Nat'l. Acad. Sci., (USA), 93:8563-8568, 1996.

139. Lu, T.T., Yan, L.G.., Madri, J.A., Integrin engagement mediates tyrosine dephosphorylation on platelet-endothelial cell adhesion moleucle-1 (PECAM-1), Proc. Nat'l. Acad. Sci., (USA), 93: 11808-11813, 1996.

140. Basson, M.D., Turowski, G., Rashid, Z., Hong, F., Madri, J.A., Regulation of human colonocyte cell line phenotype by sodium butyrate. Digest. Dis. & Sci., 41:1986-1993, 1996.

141. Basson, M.D., Rashid, G., Turowski, G., West, A.B., Emenaker, N.J., Sgambati, S.A., Perdikis, D.M., Datta, S., Madri, J.A., Restitution at the cellular level: Regulation of the migrating phenotype. Yale Journal of Biology & Medicine, 69:119-129, 1996.

142. Madri, J.A., Sankar, S., The biphasic effects of TGFβ in angiogenesis. In Tumour Angiogenesis, ed. by C.E. Lewis, R. Bicknell & N. Farrera, Oxford University Press, Oxford, England, Chapter 18, pp. 239-250, 1997.

143. Romanic, A.M., Graesser, D., Visintin, I., Baron, J.L., Janeway, C.A., Madri, J.A., T cell adhesion to endothelial cell adhesion molecules and extracellular matrix is modulated upon transendothelial cell migration. Lab. Invest., 76:11-23, 1997.

144. Ment, L.R., Stewart, W.B., Fronc, R., Seashore, C., Mahooti, S., Scaramuzzino, D., Madri, J.A., Vascular endothelial growth factor mediates reactive angiogenesis in the postnatal developing brain. Developmental Brain Research, 100:52-61, 1997.

145. Pinter, E., Barreuther, M., Lu, T.T., Imhof, B., Madri, J.A., PECAM-1/CD31 tyrosine phosphorylation state changes during vasculogenesis, Amer. J. Pathol., 150:1523-1530, 1997.

146. Papapetropoulos, A., Desai, K.M., Rudic, D.R., Mayer, B., Zhang, R., Ruiz-Torres, M.P., Garcia-Cardena, G., Madri, J.A., Sessa, W.C., Nitric oxide synthase inhibitors attenuate transforming growth factor-β1-stimulated capillary organization in vitro. Amer. J. Pathol, 150:1835-1844, 1997.

147. Ment, L.R., Stewart, W.B., Scaramuzzino, D., Madri, J.A., Germinal matrix microvascular maturation - An in vitro model, In Vitro Cellular & Developmental Biology, 33:684-691, 1997.

148. Papapetropoulos, A., Garcia-Cardena, G., Madri, J.A., Sessa, W.C., Nitric oxide production contributes to the angiogenic properties of vascular endothelial growth factor in human endothelial cells. J. Clin. Invest., 100:3131-3139, 1997.

149. Lu, T.T., Barreuther, M., Davis, S. and Madri, J.A., Platelet endothelial cell adhesion molecule-1 (PECAM-1/CD31) is phosphorylatable by c-src and binds SH2 domain and exhibits ITAM-like properties, J. Biol. Chem., 272:14442-14446, 1997.

150. DeLisser, H.M., Christofidou-Solomidou, M., Strieter, R.M., Burdick, M.D., Robinson, C., Wexler, R., Merwin, J.R., Madri, J.A., Albelda, S.M. Involvement of Endothelial PECAM-1/CD31 in Angiogenesis. Amer. J. Pathol., 151:671-677, 1997.

151. Madri, J.A., Extracellular Matrix Modulation of Vascular Cell Behavior, Transplant. Immunol., 5:179-183. 1997.

152. Bruckheimer, E., Bulbul, Z., McCarthy, P., Freidman, A.H., Madri, J.A., Hellenbrand, W.E.H., Coronary artery aneurysms in Kawasaki disease in mother and son. Circulation, 97:410-411, 1998.

153. Nilsson, S.K., Debatis M.E., Dooner, M.S., Madri, J.A., Quesenberry, P.J., Becker, P.S. Immunofluroescence characterization of key extracellular matrix proteins in murine bone marrow in vivo. J. Histochem. & Cytochem., 46: 371-377, 1998.

154. Haas, T.L., Davis, S., Madri, J.A., Three dimensional type I collagen lattices induce coordinate expression of matrix metalloproteinases MT1-MMP and MMP-2 in microvascular endothelial cells, J. Biol. Chem., 273:3604-3610, 1998.

155. Woodard, A.S., Garcia-Cardena, G., Leong, M., Madri, J.A., Sessa, W.C., Languino, L.R., Synergistic activity of the αvβ3 integrin and the PDGF receptor in microvascular endothelial cells. J. Cell Sci, 111:469-478, 1998.

156. Madri, J.A., Extracellular matrix components as substrata in cell and tissue culture, in Cells, A laboratory Manual, Volume 1: Culture and Biochemical Analysis of Cells, Edited by D.L. Spector, R.D. Goldman & L.A. Leinwand, Cold Spring Harbor Laboratory Press, pp. 3.1-3.12, 1998.

157. Kim, C.S., Wang, T., Madri, J.A., PECAM-1 Expression Modulates Endothelial Cell Migration In Vitro. Lab. Invest., 78:583-590, 1998.

158. Graesser, D., Mahooti, S., Haas, T., Davis, S., Clark, R., Madri, J.A., The interrelationship of α4 integrin and matrix metalloproteinase-2 in the pathogenesis of experimental autoimmune encephalomyelitis. Lab. Invest., 78:1445-1458, 1998.

159. Ilan, N., Mahooti, S., Madri, J.A., Distinct Signal Transduction Pathways are Utilized During the Tube Formation and Survival Phases of in vitro Angiogenesis. J. Cell Sci., 111:3621-3631, 1998.

160. Pinter, E., Mahooti, S., Wang, Y., Imhof, B.A., Madri, J.A., Hyperglycemia-induced Vasculopathy in the Murine Vitelline Vasculature: Correlation with PECAM-1/CD31 Tyrosine Phosphorylation State. Amer. J. Pathol., 154: 13667-1379, 1999.

161. Haas, T.L., Stitelman, D., Davis, S.J., Apte, S.S., Madri, J.A., Transcriptional upregulation of the membrane type matrix metalloproteinase-1 in response to extracellular cues involves Egr-1, J. Biol. Chem., 274: 22679-22685, 1999.

162. Ilan, N., Mahooti, S., Rimm, D.L., Madri, J.A., PECAM-1 (CD31) Functions as a Reservoir for and a Modulator of Tyrosine-Phosphorylated β-catenin. J. Cell Sci., 112 (18): 3005-3014, 1999.

163. Haas, T.L. & Madri, J.A., Extracellular Matrix -Driven Matrix Metalloproteinase Production in Endothelial Cells: Implications for Angiogenesis, Trends in Cardiovasc. Med., 9:70-77, 1999.

164. Ilan, N., Madri J.A., New Paradigms of Signaling in the Vasculature: Ephrins and Metalloproteases, Curr. Opin. in Biotech., 10:536-540, 1999.

165. Ogunshola, O., Stewart, W.B., Mihalcik, V., Solli, T., Madri, J.A., Ment, L.R., Neuronal VEGF mediates angiogenesis in postnatal developing rat brain, Develop. Brain Res., 119: 139-153, 2000.

166. Mahooti, S., Graesser, D., Patel, S., Newman, P.J., Duncan, G., Mak, T., Madri, J.A. PECAM-1 (CD31) expression Modulates Bleeding Time in vivo. Amer. J. Pathol., 157: 75-81, 2000.

167. Ilan, N., Cheung, L., Pinter, E., Madri, J.A. PECAM-1 (CD31): A scaffolding molecule for selected catenin family members whose binding is mediated by different tyrosine and serine/threonine phosphorylation. J. Biol. Chem., 275: 21435-21443, 2000.

168. Bonanno, E., Iurlaro, M., Madri, J.A.,Nicosia, R.F. Type IV Collagen modulates of angiogenesis and neovessel survival in the rat aorta model in Vitro. In Vitro Cell & Develop. Biol., 36: 336-340, 2000.

169. Graesser, D., Mahooti, S., Madri, J.A., Distinct roles for matrix metalloproteinase-2 and α4 integrin during T lymphocyte entry and residency in the pathogenesis of experimental autoimmune encephalomyelitis. J. Neuroimmunol., 109(2):121-131, 2000.

170. Haas, T.L., Milkiewicz, M., Davis, S.J., Zhou, A.L., Egginton, S., Brown, M.D., Madri, J.A., Hudlicka, O. Matrix metalloproteinase-2 and membrane type matrix metalloproteinase-1 are co-ordinately upregulated during adaptive angiogenesis. Amer. J. Physiol., 279: H1540-H1547, 2000.

171. Madri, J.A., Graesser, D., Cell Migration in the Immune System: The Evolving Inter-related Roles of Adhesion Molecules and Proteinases. Develop. Immunol., 7: 103-116, 2000.

172. Ilan, N., Cheung, L., Mohsenin, A., Madri, J.A. PECAM-1 shedding during apoptosis generates a membrane-anchored truncated molecule with unique signaling characteristics. FASEB J., 15:362-372, 2001.

173. Madri, J.A., Evolving Paradigms in Vasculogenesis and Angiogenesis, in Genetic Models in Cardiorespiratory Biology - Cardiovascular Biology, Edited by G.G. Haddad & T. Xu, Marcel Dekker, New York, pp. 281-312, 2001.

174. Madri, J.A., The extracellular matrix and the regulation of angiogenesis in Tumor Angiogenesis and Microcirculation, edited by P. D'Amore and E. Voest, Marcel Dekker, New York, pp. 9-28, 2001.

175. Pinter, E., Haigh, J., Nagy, A., Madri, J.A. Hyperglycemia-induced Vasculopathy in the Murine Conceptus is Mediated via Reductions of VEGF Expression and VEGF Receptor Activation. Amer. J. Pathol., 158:1199-1206, 2001.

176. Ilan, N., Cheung, L., Miller, S., Mohsenin, A., Tucker, A., Madri, J.A. PECAM-1 is a modulator of STAT family member phosphorylation and localization: Lessons from a transgenic mouse. Develop. Biol., 232:219-232, 2001.

177. Marx, M., L., Warren, S.L, Madri, J.A. $pp60^{c\text{-}src}$ modulates microvascular endothelial phenotype and in vitro angiogenesis. Exptl. & Mol. Pathol., 70:201-213, 2001.

178. Xie, B., Kitagawa, M., Durbin, J., Madri, J.A., Guan, J-L., Fu, X-Y. Focal adhesion kinase activates Stat1 in integrin-mediated cell migration and adhesion. J. Biol. Chem., 276(22):19512-23, 2001.

179. Chow, J., Ogunshola, O., Fan, S.-Y., Li, Y., Ment, L.R., Madri, J.A. Astrocyte-derived VEGF mediates survival and tube stabilization of hypoxic brain microvascular endothelial cells in vitro. Develop. Brain Res., Sep 23;130(1):123-132, 2001.

180. Ogunshola, O.O, Antic, A., Donoghue, M.J., Fan, S-H, Stewart, W.B., Madri, J.A., Ment, L.R., Paracrine and autocrine functions of neuronal VEGF in the CNS. J. Biol. Chem., 277(13):11410-11415, 2002.

181. Graesser, D., Solowiej, A., Bruckner,M., Osterweil, E., Judes, A., M., Davis, S., Ruddle, N., Engelhardt, B., Madri, J.A. Changes in Vascular Permeability and Early Onset of Experimental Autoimmune Encephalomyelitis in PECAM-1 (CD31) Deficient Mice. J. Clin Invest., 109:383-392, 2002.

182. Yamaguchi, S., Yamaguchi, M., Yatsuyanagi, E., Yun, S-S., Nakajima, N., Madri, J.A., Sumpio, B.E., Cyclic strain stimulates Egr-1 mediated expression of MT1-MMP in endothelium, Lab. Invest., 82:949-956, 2002.

183. Yun, S., Dardik, A., Haga, M., Yamashita, A., Yamaguchi, S., Koh, Y., Madri, J.A., Sumpio, B.E., Transcription factor Sp1 Phosphorylation Induced by Shear Stress Inhibits MT1-MMP Expression in Endothelium, J. Biol. Chem., 277:34808-34814, 2002.

184. Currisin, S.M., Cao, A., Stewart, W.B., Zhang, H., Madri, J.A., Morrow, J.S., Ment, L.R., Disrupted Synaptic Maturation in the Hypoxic Newborn Brain, Proc. Natl. Acad. Sci. (USA), 99 (24):15729-15734, 2002.

185. Gratzinger, Barreuther, M., Madri, J.A. Platelet-Endothelial Cell Adhesion Molecule-1 Modulates Endothelial Migration through its Immunoreceptor Tyrosine-based Inhibitory Motif. Biochem. Biophys. Res Comm., 301: 243–249, 2003.

186. Biswas, P., Canosa, S., Schoenfeld, J., Schoenfeld, D., Tucker, A., Madri, J.A., PECAM-1 promotes β-catenin accumulation and stimulates endothelial cell proliferation, Biochem. Biophys Res. Comm., 303: 212-218, 2003.

187. Enciso, J., Gratzinger, D., Camenisch, T.D., Canosa, S., Pinter, E., Madri, J.A. Elevated glucose inhibits VEGF-mediated endocardial cushion formation: modulation by PECAM-1 and MMP-2. J. Cell Biol., 160: 605-615, 2003.

188. Solowiej, A., Biswas, P.,Graesser, D., Madri, J.A., Absence of PECAM-1 Attenuates Foreign-Body Inflammation Due to Decreased Angiogenesis in and around the Implant. Amer. J. Pathol., 162: 953-962, 2003.

189. Madri, J.A., The Evolving Roles of Cell Surface Proteases in Health and Disease: Implications for Developmental, Adaptive, Inflammatory and Neoplastic processes, in Cell Surface Proteases and Related Mechanisms, Curr Top Dev Biol,54:391-410, 2003.

190. Payne, G.W., Madri, J.A., Sessa. W.C., Segal, S,S., Abolition of arteriolar dilation to histamine in cremaster muscle of eNOS -/- mice. Am J Physiol Heart Circ Physiol., 285(2):H493-H498, 2003.

191. Gratzinger, D., Canosa, S., Engelhardt, B., Madri, J.A., PECAM-1 modulates endothelial cell motility through the small G-protein Rho, FASEB J., 17:1458-1469, 2003.

192. Ilan, N., Tucker, A., Madri, J.A., VEGF expression, β-catenin tyrosine phosphorylation and endothelial proliferative behavior: A pathway for transformation?, Lab. Invest., 83 (8):1105-1115, 2003.

193. Ilan, N., Madri J.A., PECAM-1: Old friend, new partners, Curr. Opin. in Cell Biol., 15(5):515-24, 2003.

194. Madri, J.A., Enciso, J., Pinter, E., Maternal diabetes: Effects on embryonic vascular development – A VEGF-A mediated process., Ped. Develop. Pathol., 6(4):334-341,.2003.

195. Han, X., Boyd, P.J., Colgan, S., Madri, J.A., Haas, T.L. Transcriptional upregulation of endothelial cell matrix metalloproteinase-2 in response to extracellular cues involves GATA-2. J. Biol. Chem., 278(48):47785-47791, 2003.

196. Payne, G.W., Madri, J.A., Sessa, W.C., Segal. S.S., Histamine inhibits conducted vasodilation through NO production in arterioles of mouse skeletal muscle, FASEB J., 18:280-286, 2004.

197. Nath, A.K., Enciso, J. Kuniyasu, M., Hao, X-Y., Madri, J.A. and Pinter, E., Nitric Oxide Modulates Murine Yolk Sac Vasculogenesis and Rescues Glucose Induced Vasculopathy, Development, 131, (10):2485-96, 2004.

198. Meoli, D.F., Sadeghi, M.M., Krassilnikova, S., Bourke, B., Giordano, F.J., Dione, D. P., Su, H., Edwards, D.S., Liu, S., Harris, T.D., Madri J.A., Zaret, B.L., Sinusas, A.J., Non-invasive imaging of myocardial angiogenesis following experimental myocardial infarction, J. Clin. Invest., 113(12):1684-1691, 2004.

199. Kim, H., LI, Q., Hempstead, B., Madri, J.A. Paracrine and Autocrine Functions of BDNF and NGF in Brain-derived Endothelial Cells, J. Biol. Chem., In Press, 5/28/2004. e-pub ahead of print.

200. Clark, D.J., Pfau, S.E., Madri, J.A. Patel, P., Brennan J.J., Remetz,M., Howes, C., Cabin, H.S., Setaro, J.F., Tucker, A., Rollins, S.A., Bell, L, Cleman, M.W. Terminal Complement in Acute Coronary Syndromes: Increased Activation across the Coronary Circulation and in Unstable Atherosclerotic Plaque. In Revision, 2004.

201. Esparza, J., Kruse, M., Lee, J., Michaud, M and Madri, J.A., MMP-2 null mice exhibit an early onset and severe experimental autoimmune encephalomyelitis due to an increase in MMP-9 expression and activity. Submitted, 2004.

202. Carrithers, M., Tandon, S., Canosa, S., Michaud, M., Graesser, D. and Madri, J.A., Enhanced susceptibility to endotoxic shock and impaired STAT3 signaling in CD31- deficient mice, In Revision, 2004.

203. Biswas, P., Zhang, J., Schoenfeld, J., Schoenfeld, D., Gratzinger, D., Canosa, S., Madri, J.A., Interactions and identification of the regions of PECAM-1 involved in β- and γ-catenin associations and their biological significance, Submitted, 2004.

204. Sankar, S., Lum, J., Mahooti-Brooks, N., Centrella, M., McCarthy, T.L., Madri, J.A., Modulation of transforming growth factor beta receptor profiles differentially regulate TGF-β mediated responsiveness in vascular endothelial cells. In Preparation, 2004.

Committee Work

Member - Department Safety Committee, 1980-1983
Member - Housestaff Selection Committee, 1980-1987 & 1989-1993
Member - Medical Student Pathology Course Committee, 1980-Present
Member - Graduate Student Program Committee, 1983-Present
Member - MD/PhD Student Advisory and Admissions Committee, 1986-Present
Member - Miles Seminar Series Program Committee, 1984-1986
Chairman - Pathology Department Research Seminar Series Committee, 1981-1987
Chairman - Departmental Medical School Thesis Committee, 1982-1985
Chairman - Departmental Photographic Services Committee, 1985-1987
Director of Graduate Studies, Experimental Pathology, 1986-1987
Member - American Cancer Society Institutional Research Grant Review Committee, 1988-1990
Member - FASEB-AAP Program committee, 1988-1990
Chairman - Pathology Search Committee - in Pediatric & Neonatal Pathology, 1989-1990
Co-Chairman - Yale University Center of Molecular Medicine Cardiobiology Advisory Group, 1989-1991
Member - Yale University Planning & Priorities Committee, 1990 - 1993
Director of Medical Studies: Pathology - 1992- Present
Member - Yale University Basic Sciences Curriculum Subcommittee - 1992 - Present
Member - Yale University Education Policy & Curriculum Committee - 1996 - 1998
Councilor - American Society of Investigative Pathology, 7/1/93 to 6/30/96
Member - ASIP Committee on Career Development, Women & Minorities, 7/1/93 to 6/30/96
Member - Pathology Department Executive Committee, 2/99 to present
Member - Yale University Senior Appointments and Promotions Committee, 1999 – 2002
Chair – Anna Fuller Foundation Fellowship Selection Committee at Yale, 2000 - Present
Member – ASIP Meritorious Awards selection committee, 2002 to present

Presentations at National and International Meetings:

Gordon Conference - Structural Macromolecules. Collagen. Speaker, "Endothelial Cell Collagen Biosynthesis: Structure/Function Relationships." Santa Barbara, CA, 2/80.

Gordon Conference - Structural Macromolecules. Collagen. Speaker, "Monoclonal Antibodies to Type IV Collagen: Molecular Probes." Plymouth, NH, 7/81.

FASEB Symposium Chairman & Speaker. "Immunochemistry of the Extracellular Matrix." New Orleans, LA, 4/82.

Symposium, The Extracellular Matrix: Chemistry, Biology, Pathology. Speaker, "Collagen Immunology and Immunochemistry." Washington University, St. Louis, 6/82.

Conference on: The biology of Inflammation, Cell-Cell Interactions and Connective Tissue: Potential New Approaches to Atherosclerosis Research. Speaker, "Endothelial Cell-Matrix Interactions in Hemostasis and Angiogenesis." NIH, Washington, DC, 9/82.

Gordon Conference - Atherosclerosis. Speaker, "Endothelial Cell-Matrix Interactions: The Role of Matrix in Angiogenesis." Meriden, NH, 6/83.

Gordon Conference - Structural Macromolecules - Collagen. Speaker, "Capillary Endothelial Cell Cultures: Phenotypic Modulation by Extracellular Matrix." Plymouth, NH, 7/83.

CIBA Foundation Symposium. Basement Membranes and Cell Movement. Speaker, "The Structure and Organization of Basement Membranes." London, U.K., 1/84.

FASEB Symposium - Matrix Aspects of Wound Healing. Speaker, "The Role of Matrix in Modulating the Angiogenic Response." St. Louis, MO, 4/84.

Biology of the Vascular Endothelial Cell: Third International Symposium. Speaker, "Endothelial Cell Cytoskeletal-Matrix Interactions." Boston, MA, 6/84.

Cellular and Molecular Organization of Epithelia, British Society of Cell Biology. Speaker, "Endothelial cell-Matrix Interactions in Large Vessel and Microvascular Endothelium." Kent, England, 9/84.

Biology, Chemistry and Pathology of Collagen, N.Y. Academy of Sciences Symposium. "Endothelial Cell-Extracellular Matrix Interactions." New York, NY, 10/84.

FASEB Symposium Co-Chairman & Speaker. "Plasma Membrane Interactions with the Cytoskeleton and Exoskeleton." Anaheim, CA, 4/85.

Histochemical Society Annual Meeting, Invited Lecture: "Endothelial Cell-Matrix Interactions: In Vitro Models of Angiogenesis." Washington, DC, 5/85.

Gordon Conference - Atherosclerosis. Speaker, "Endothelial Cell Proteoheparin Sulfate Metabolism: Modulation by Matrix." Meriden, NH, 6/85.

Gordon Conference - Structural Macromolecules. Collagen. Chairman & Speaker - Session on The Pathology of Connective Tissues. Plymouth, NH, 7/85.

NIH Symposium on: Perspectives in Endothelial Cell Biology. Speaker, "Cytoskeletal-Matrix Interactions of the Endothelium." Washington, DC, 12/85.

FASEB Symposium Chairman & Speaker. "Extracellular Matrix-Cytoskeleton-Membranes." St. Louis, MO, 4/86.

George Washington University Sixth Annual International Spring Symposium: Cardiovascular Disease '86: Molecular and Cellular Mechanisms, Prevention, Treatment. Speaker, "The Extracellular Matrix as a Modulator of Neovascularization." Washington, DC, 5/86.

University of Iowa, Pulmonary Disease Division, Boehringer-Ingelheim Lecturer, Iowa City, Iowa, 11/6-7/86.

Gordon Conference - Cell Contact and Adhesion Speaker, "Endothelial Cell-Matrix Interactions: Microvascular Endothelial Cells." Tilton, H.H., 6/87.

Distinguished Lecture Series, The Cellular and Molecular Biology Component of ASEND, University of North Dakota, Lecturer, "Microvascular Endothelial Cells: Modulation by Extracellular Matrix." Grand Forks, N.D., 9/27-29/87

Tissue Culture Association Annual Meeting, Invited Lecture: "Interactions of Soluble (TGF-β) and Solid Phase (Matrix) Factors in Angiogenesis." Las Vegas, NV, 6/12-15/88.

Gordon Research Conference on Vascular Cell Biology, Speaker, "Endothelial Cell Modulation by Solid Phase (Matrix) and Soluble Factors (TGF-β)." Meridian, N.H., 7/31/88 - 8/5/88.

Vth Workshop of The Swiss Association Against High Blood Pressure, "The Vascular Smooth Muscle Cell". Lecture Title: "Interactions of Soluble and Solid Phase Factors in Arterial and Capillary Endothelial Cells". Montreux, Switzerland, 10/2/88 - 10/4/88.

FASEB Symposium Chairman & Speaker. "Adhesive Proteins and Matrix Interactions in Vascular Cells" New Orleans, LA, 3/89.

AASLD Asilomar Conference on Connective Tissue Biology of the Liver. Speaker, "Endothelial cell responses to injury: Modulation by matrix and soluble factors" Asilomar, CA, 4/16 to 4/19/89.

Biology and Chemistry of Transforming Growth Factor Beta, N.Y. Academy of Sciences Symposium. Speaker, "The Effects of TGF-β1 and β2 on Vascular Cells" Bethesda, MD, 5/18 to 5/20/89.

Workshop on the Biology of the Renal Microvasculature, Speaker, "Cell-Basement Membrane Interactions in Control of Growth and Differentiation" National Institutes of Health, Bethesda, MD, 10/23/89 to 10/24/89.

Endothelial Cells in Development and Disease, Speaker, "Regulation of Endothelial Cell Function by Extracellular Matrix", National Institutes of Health, Crystal City, VA, 11/19/89 to 11/21/89.

The Biology of Sarcomas, UCLA symposium, Co-organizer, Session Chairman and speaker "Interactions of tumor cells, host stromal cells and the extracellular matrix", Lake Tahoe, CA, 3/11/90 to 3/16/90.

The Endothelial Cell/Tissue Engineering, Joint UCLA symposia, Joint meeting, Session Chairman and speaker "Endothelial cell phenotypes" Keystone, CO, 4/6/90 to4/12/90.

First Altschul Symposium, Atherosclerosis: Cellular and molecular interactions in the artery wall, Organizing committee member and Speaker, "Soluble factor and matrix modulation of vascular cell phenotype", Saskatoon, Saskatchewan, Canada, 4/29/90 to5/2/90.

American Lung Assoc., American Thoracic Society World Conf. on Lung Health, Invited speaker in Cellular and extracellular regulation of pulmonary vascular growth and development, "Extracellular matrix composition and organization as a modulator of microvascular endothelial cell phenotype, Boston, MA, 5/20/90 - 5/24/90.

Second Gordon Research Conference on Vascular Cell Biology, Session chairman and Speaker on vascular cells and extracellular matrix, "Vascular Cell Phenotypic Modulation by Solid Phase (Matrix) and Soluble Factors." Meridian, N.H., 7/29/90 - 8/3/90.

Workshop on "Development of Cell Lines for Hypertension Research" Invited Speaker, "The role of the extracellular matrix and soluble factors in modulating vascular cell behavior", National Institutes of Health, Bethesda, MD, Feb. 19 & 20, 1991

FASEB Symposium Co-Chairman & Speaker. "Cell-Cell Interactions in Vascular Cells" Atlanta, GA, April, 1991.

24th Annual Lofland Conference, Speaker: Speaker, "Positive and Negative Modulators of Endothelial Cell Migration", Seattle, WA, May 22 to 26, 1991.

International Society of Nephrology Sponsored Symposium "Forefronts in Nephrology - Biology of the Glomerular Mesangium", Co-Organizer and Speaker, "Matrix-Driven Growth Factor Receptor Modulation of Vascular Cells", Kloster Banz, F. R. Germany, June 9 to 12, 1991.

MCDB/ISU Symposium on Transforming Growth Factor-β and Related Proteins in Development, Speaker: "Modulation of Vascular Cell Behavior by Transforming Growth Factors-β", Ames, Iowa, September 20 to 23, 1991.

The Molecular Biology of the Endothelial Cell, UCLA symposia, Joint meeting, Session Chairman and Speaker "Endothelial cell phenotypes" Keystone, CO, 1/13/92 to1/17/92.

American Heart Association Meeting on Vascular Cell Biology, Speaker, "Fibronectin alternate splicing in vascular cells: Functional Significance", SnowBird, Utah, 1/29/92 to 2/1/92.

FASEB-APS Society Symposium Speaker. Cellular and Molecular Biology of the Endothelial Cell, "The inter-relationships between growth factors and extracellular matrix components in angiogenesis and neovascularization", Anaheim, CA , April 5 to 10, 1992.

Third Gordon Research Conference on Vascular Cellular and Molecular Biology, Meeting Co-Chairman and Speaker, The role of PECAM-1 (CD31) in modulating endothelial cell migration", Meridian, N.H., 6/29/92 to 7/3/92.

Upjohn Brook Lodge Workshop Speaker, "A new understanding of the role of matrix metalloproteinases in tumor biology", Invited Participant, Augusta MI, 9/27/92 to 9/29/92.

Biology of the Vascular Endothelial Cell: VII International Symposium on the Biology of Vascular Cells. Speaker, "Endothelial Cell-Matrix Interactions." San Diego, CA, 11/10/92 to 11/14/92.

American Heart Association, 10th National Conference on Thrombosis and Hemostasis, Speaker, "Factors that enhance and inhibit endothelial cell migration", New Orleans, LA, 11/18/92.

Cell Adhesion Mechanisms in Leukocyte Traffic, UCLA symposia, Joint meeting, Session Chairman and Speaker "Microvascular Endothelial cell Differentiation" Keystone, CO, 1/24/93 to1/31/93.

Tissue Regeneration Workshop, Invited Speaker, "Extracellular Matrix Modulation of Endothelial Cell Phenotype During Angiogenesis", Princeton, NJ, Johnson & Johnson, 3/9 & 10/93.

Endothelial Changes in Age-Related Vascular Disease Workshop, National Institute on Aging, Invited Speaker, "Matrix Organization and Endothelial Differentiation", Bethesda, MD, 4/26 & 27/93.

American Heart Association, Conference on Molecular and Cellular Biology of Vascular Cells, Speaker, "The Role of T cell Proteinases in Transmigration", Boston, MA, 10/15/93 to 10/17/93.

Molecular Biology of the Endothelial Cell, UCLA symposia Speaker, "Microvascular Endothelial cell Differentiation" Keystone, CO, 1/16/94 to1/23/94.

FASEB-ASIP Society Symposium Speaker. Tissue Repair and Regeneration, "The role of c-src in endothelial cell signal transduction during migration and angiogenesis", Anaheim, CA , April 24 to 29, 1994.

FASEB-ASIP Society Symposium Co-Chairman & Speaker (with Dr. Marlene Rabinovitch). Extracellular Matrix in the Vessel Wall, "Extracellular Matrix Mediated Signalling in Vascular Cells Following Injury", Anaheim, CA , April 24 to 29, 1994.

Fogarty International Center Conference on TGF-βs: Biological Mechanisms and Clinical Applications, Speaker, "The Modulation of Vascular Cells by TGF-βs", Nat'l. Institutes of Health, Bethesda, MD., May 4-6, 1994.

4th Gordon Research Conference on Vascular Cellular and Molecular Biology, Speaker, "Engagement of α4β1/VCAM-1 Elicits T cell Proteinase Induction during Transmigration", Meridian, N.H., 6/13/94 to 6/19/94.

2nd Franz Volhard Symposium on "Mechanisms of Angiogenesis", Speaker, "Cell-Matrix Interaction in Angiogenesis" Max-Delbruck Center, Berlin, Germany, 5/25/95 to 5/28/95.

Gordon Research Conference on Cell Adhesion, Speaker, "Specific integrin mediated signalling", Andover, N.H., 6/11/95 to 6/15/95.

Gordon Research Conference on Matrix Metalloproteinases, Speaker, "Engagement of α4β1/VCAM-1 Elicits T cell Proteinase Induction during Transmigration", Andover, N.H., 7/16/95 to 7/21/95.

International Symposium: New Frontiers in Infection, Inflammation and Autoimmunity, Speaker, "Integrin-Mediated Proteinase Induction: Its role in T cell Transendothelial Migration", Atezelsberg Castle, Erlangen, Germany, 11/30/95 to 12/3/95.

Wound Healing in Context/Tissue Engineering, UCLA symposia, Joint meeting, Session Chairman and Speaker "Extracellular matrix modulation of Microvascular Endothelial cell TGFβ receptor expression" Taos, NM, 1/23/96 to1/28/96.

American Association for Cancer Research Special Conference: Proteases and Protease Inhibitors, Speaker "The roles of adhesion molecules and proteinases in lymphocyte transendothelial migration", Panama City, FL, 3/2/96 to 3/5/96.

FASEB-NAVBO/ASIP Society Symposium Co-Chairman & Speaker (with Dr. Tim Hla). Vascular Cell and Molecular Biology, "Extracellular Martix Mediated Signalling in Vascular Cells ", New Orleans, LA , 5/31/96 to 6/4/96.

Sixth World Congress for Microcirculation, Session Co-chairman and Speaker: The Extracellular Matrix as a Modulator of Vascular Growth - "Modulation of Endothelial Cell Phenotype by Matrix", Munich, Germany, 8/25/96 to 8/29/96.

Twelfth International Symposium on Cellular Endocrinology "The Extracellular Matrix: Its Synthesis, Function and Degradation", Speaker: "Adhesion molecules and proteinases in T cell transendothelial migration", Lake Placid, New York, 9/12/96 to 9/15/96.

Second International Symposium on the Etiology and Pathobiology of Transplant Vascular Sclerosis, Chair & Speaker, Plenary Session IV: Cell-Matrix Interactions, "Extracellular Matrix Modulation of Vascular Cell Behavior", Bermuda Southampton Princess Resort, Bermuda, 3/5-3/9/97.

Gordon Research Conference on Angiogenesis and Microcirculation, Speaker, "Matrix-driven integrin-mediated PECAM-1 tyrosine dephosphorylation during vasculogenesis and endothelial cell migration" Salve Regina College, Newport, RI, 08/17/97 to 08/22/97.

Thirteenth International Symposium on Cellular Endocrinology "The Development of the Vascular System", Speaker: "PECAM-1 (CD31) tyrosine phosphorylation and signaling in vasculogenesis and angiogenesis" Lake Placid, New York, 9/11/97 to 9/14/97.

Cardiovascular Function Symposium, American Heart Association, Speaker: "The role of PECAM-1 in vasculogenesis and angiogenesis" Lake Tahoe, CA, 2/22/98 to 2/25/98.

Endothelium/Molecular Mechanisms of Leukocyte Trafficking, Joint UCLA symposium, Speaker "Vascular differentiation during post-natal neural development", Lake Tahoe, CA, 3/21/98 to 3/28/98.

NHLBI/ATS Workshop on the Molecular and Genomic Effects of Tissue Oxygen Deprivation in Sleep Apnea. Speaker: "Hypoxia-Induced Brain Angiogenesis", Bethesda, MD, 9/24/98 to 9/25/98.

University of Toronto, Faculty of Medicine, Department of Laboratory Medicine and Pathobiology, Keynote Speaker, Research Day, Toronto, Canada, 2/1/99.

International Society for Heart Research Symposium, Speaker: "PECAM-1 and Angiogenesis", San Diego, CA, 6/9/99 to 6/12/99.

Gordon Research Conference on Angiogenesis and Microcirculation, Poster Presenter, "PECAM-1 is a reservoir for and a modulator of β-catenin" Salve Regina College, Newport, RI, 08/15/99 to 08/20/99.

New York Academy of Medicine conference: Angiogenesis-Research Frontiers, Invited Speaker: "Differential tyrosine and serine phosphorylation of endothelial PECAM-1 modulates association with β– and γ-catenins and SHP-2: Implications for angiogenesis", New York City, NY, 1/10/00.

FASEB-ASIP Society Symposium Speaker. Symposium: Regulation of Vascular Cell Growth by Extracellular Matrix, Lecture Title: "PECAM-1: A modulator of junctional, adhesive, migratory and proliferative activities", San Diego, CA , 4/14/00 to 4/19/00.

FASEB-ASIP Society Chugai Award Recipient and Invited Chair & Speaker. Chugai Symposium: Lecture Title: " PECAM-1: A multidomain/multifunctional protein with diverse signaling and scaffolding properties - Implications for angiogenesis and inflammation", Orlando, FL , 3/31/01 to 4/4/01.

University of Illinois, Chicago, Medical School, DeTrana Lecture in Pathology, " PECAM-1: A multidomain/multifunctional protein with diverse signaling and scaffolding properties - Implications for angiogenesis and inflammation" April 23, 2001.

Gordon Research Conference on Matrix Metalloproteinases Speaker: "Matrix Metalloproteinases and vascular control: new paradigms", Il Chocco, Tuscany, Italy, 5/13/01 to 5/18/01.

National Multiple Sclerosis Society Round Table Discussion - Invited Panelist "Strides and Stumbles in MS", Hartford, CT, 6/26/01.

FASEB-ASIP Society Symposium Co-Chair & Speaker. Proteases, Matrix and Proteoglycans: Lecture Title: " Coordinate Control of MT1-MMP and MMP-2 Expression During Angiogenesis: The roles of Egr-1, Sp1 and AP1", New Orleans, LA , 4/21/02 to 4/24/02.

Third Ringberg Conference on Molecular Mechanisms of Leukocyte Traffic, Invited Speaker, "CD31: A modulator of vascular and leukocyte function" Ringberg, Germany, 9/22/02 to 9/25/02, 2002.

American Society For Cell Biology 42nd Annual Meeting, Co-Chair and Speaker, Minisymposium: "Cell Biology of Angiogenesis", San Francisco, CA, 12/14/02 to 12/18/02.

New Therapeutic Targets in Vascular Biology, Invited speaker: "The inter-related roles of VEGF, PECAM-1 and MMP-2 in cardiac cushion development", Geneva, Switzerland, 2/6/03 to 2/9/03.

Novo Nordisk Foundation Consortium 5th Annual Conference on "Vascular Biology in Complications of Diabetes" Invited speaker; "Maternal Diabetes: Effects of on embryonic vascular development – a VEGF-A mediated process". Tammsvik Conf. Ctr., Bro, Sweden, 5/16/03 to 5/18/03.

International Society on Thrombosis and Haemostasis – XIX Congress, Invited speaker: "Cell adhesion and Angiogenesis", Birmingham, UK, 7/12/03 to 7/18/03.

FASEB-ASIP Society Symposium Co-Chair & Speaker. Molecular and cellular basis of disease: Structure and function of the extracellular matrix in disease: Novel roles and regulation of MMPs and TIMPs in disease. Lecture Title: "Evidence for a cellular protease thermostat in health and disease", Washington, DC , 4/17/04 to 4/22/04 .

XIII[th] International Vascular Biology Meeting, Invited Speaker, "PECAM-1 A dynamic multifunctional regulator of junctional integrity", Toronto, Canada, 6/1/04 to 6/5/04.